

### **REMARKS**

Claims 1, 4-6, 9 and 10 are rejected under 35 USC 103(a) as being unpatentable over Takashimizu, JP 410091088 A (See Thomson-Derwent Translation JP10-91088A) in view of Hill, Jr., USPN 5,790,096 and of Kubes et al., USPN 6,035,180. Claims 2 and 7 are rejected under 35 USC 103(a) as being unpatentable over Takashimizu, in view of Kubes and Hill, as applied to claims 1 or 6 above, and further in view of Shimoda (US 5,944,829). Claims 3 and 8 are rejected under 35 USC 103(a) as being unpatentable over Takashimizu, Hill, and Kubes as applied to claims 1 or 6 above, and further in view of Nelson et al. (US 6,311,282 B1). Reconsideration and allowance of the claims is requested for the following reasons.

The Examiner states that Takashimizu teaches a color electroluminescent display, comprising a plurality of different colored light emitting elements, and displaying a monochrome image on such color display using only one color to save power (referencing Takashimizu, pp. 4, 8-9, 33-35, and figures 2, 3, 8, and 13-16). While acknowledging that Takashimizu does not specifically teach a digital image processing circuit for converting at least a portion of a color digital image to be displayed on the display to a monochrome image, the Examiner states that such feature is “inherent to the circuit and function described”.

Applicant respectfully disagrees with such interpretation of the teachings of Takashimizu. Rather than teach any “inherent” digital image processing circuit for converting at least a portion of a color digital image to be displayed on the display to a monochrome image to save power, Takashimizu instead appears to teach a system wherein when a monochrome image is to be displayed on a color display (e.g., based on the actual content of the input picture signal, rather than on a conversion of a color digital image input signal into a monochrome image), impression of driving pulses to unselected line actuation electrodes for unused pixels for the monochrome image can be avoided, thereby reducing power consumption relative to display of the monochrome image if driving pulses were still impressed to the unselected line actuation electrodes of the unused pixels. Thus, Takashimizu relates to a more power efficient way to display an original monochrome

image on a color display device, not conversion of a color image into a monochrome image in order to save power on the color display device. There simply appears to be no teaching in Takashimizu directed towards conversion of a color image signal into a monochrome image signal, and selection of use of only the most efficient light emitting elements of a color display to display such a converted image signal to save power relative to display of the original unconverted image signal.

The Examiner further states that Hill teaches a digital image processing circuit (color to monochrome reduction device 21) for converting at least a portion of a color digital image to be displayed on the display to a monochrome image (referencing Hill, col. 2, line 58-col. 3, line 8; and col. 7, lines 10-40; figure 1; and table I), and that Hill also shows weighting factors for each color, thus implying that each color emitting element has a different light emitting efficiency (referencing Hill, col. 7, lines 7-40; figure 1; and table I). Based on such purported teachings, the Examiner states it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of the digital image processing circuit as taught by Hill with the electroluminescent display as taught by Takashimizu to implement the monochrome image described by Takashimizu, stating that Hill invites such combination by teaching full color images may be reduced to a plural bit grey scale for display on a monochrome screen, and that further, monochrome to monochrome, monochrome to color, and color to color image processing also is provided (referencing Hill, col. 2, lines 58-62).

Again, Applicant respectfully disagrees with the Examiner's interpretation of the prior art teachings, and the proposed combination of the teachings of Takashimizu and Hill as related to the present invention. As previously explained, Hill discloses a controller for controlling all kinds of displays, including electroluminescent displays. In a first mode, the controller uses only the green portion of a video signal to drive the red, green and blue inputs of a color display to produce a monochrome image. Thus, in this mode, all of the color elements are driven (see Col 7, lines 16-20) by the same amount, and no power saved thereby. In a second mode, the controller converts a color image signal to a monochrome signal according to the weighting chart in Table 1, and the monochrome signal is then used to drive a

monochrome display having only one color of light emitting elements (see Col 7, lines 21-30). Thus, this mode also is not directed towards saving power on a color display. Neither of these modes suggest Applicant's invention, which is to save power in a color electroluminescent display of the type having color emitting elements with different light emitting efficiencies by selectively driving only the color elements of the color display having the highest light emitting efficiency with a converted monochrome image signal derived from an input color digital image. Further, the weighting factors for each color described in Hill with respect to conversion of a color signal to a monochrome signal do not relate to differential light emitting efficiencies for different color emitting elements, but rather to color mixing standards for obtaining desired monochrome color hues.


Finally (with respect to claims 1 and 6), the Examiner further states that Kubes specifically teaches a color organic electroluminescent display having a plurality of different light emitting elements each having different light emitting efficiencies, that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the color organic electroluminescent elements as taught by Kubes with the color electroluminescent display as taught by Hill, and (while acknowledging that neither Takashimizu, Hill, nor Kubes specifically teach using the light emitting element having the highest light emitting efficiency) that it would have been obvious to one of ordinary skill in the art at the time of the invention to use the element having the highest light emitting efficiency, specifically the organic EL green/yellow as taught by Kubes, to produce a power saving monochrome display having the greatest efficiency.

While Kubes does disclose that different color light emitting elements may have different light emitting efficiencies, the proposed combination of references is based on misinterpretations of the other individual references as discussed above. Thus, even if the electroluminescent display elements of Kubes et al. were to be combined with the displays of Takashimizu and controllers of Hill as the Examiner suggests, it would not result in Applicant's invention as disclosed and claimed since neither Hill Jr., Takashimizu nor Kubes et al. suggest conversion of a color image to be displayed on a color display into a monochrome image, and driving only the

highest efficiency color elements of the color display when displaying the converted image to achieve power savings. It is believed therefore that the Examiner has still failed to state a *prima facie* argument for obviousness and Applicant is entitled to patentability of claims 1 and 6. The remainder of the claims depend from claim 1 or 6 and are believed to be patentable for at least the same reasons. It is believed that the claims in the application are allowable over the prior art and such allowance is respectfully requested.

In view of the foregoing remarks, reconsideration of this patent application is respectfully requested. A prompt and favorable action by the Examiner is earnestly solicited. Should the Examiner believe any remaining issues may be resolved via a telephone interview, the Examiner is encouraged to contact Applicants' representative at the number below to discuss such issues.

Respectfully submitted,

  
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